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# TCT@ACC-i2: The Interventional Learning Pathway

## PARAVALVULAR LEAK AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT (TAVR) IS ASSOCIATED WITH ASCENDING AORTA AND ARCH ANATOMY

Moderated Poster Contributions
Hall C
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**Background:** Paravalvular leak (PVL) is recognized in 9-22% of patients undergoing transcatheter aortic valve replacement (TAVR). It is an independent risk factor for mortality at short-and mid-term follow-up. Recognized causes include inadequate valve stent dilation and eccentric aortic valve calcification. Suboptimal valve stent position in the aorta may also be a factor in PVL severity. This study examined the 3D relationship between the ascending aorta, aortic valve and PVL using computed tomography (3DCT), to better understand the aortic parameters most importantly associated with PVL.

**Methods:** Consecutive transfemoral TAVR cases were studied for PVL, defined as any amount greater than mild. Aortic lengths (ascending aorta and arch, descending aorta and abdominal aorta), aortic annulus (area, major/minor diameter) and aortic valve calcification were quantified using 3DCT.

**Results:** Seventy cases were identified and divided into two groups, (PVL, n=12 and non-PVL, n=58). The total ascending aortic and arch length among PVL and non-PVL patients were 120.5±17.8mm and 105.7±12.8mm respectively, significantly longer in PVL than non-PVL cases (p=0.001). Aortic valve calcific volumes between the two groups were 6383±3545mm3 and 3110±2387mm3 respectively, significantly larger in PVL vs. non-PVL groups (p=0.0002). No other significantly differences between the two groups were found.

**Conclusions:** The ascending aortic and arch lengths are strongly associated with PVL incidence and severity. Long proximal aortae may have more calcification, and be more tortuous with steep incidence angles between the aortic valve and aorta. Additional care may be indicated for TAVR procedures when aortic dimensions are long.